# Researched Based Instructional Strategies

# for

# Improving Student Achievement

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 **Cooperative Learning:** is situated within the social constructivist paradigm. Students work on projects or problems in teams with both personal and team accountability for conceptual understanding.

[**http://www.kaganonline.com/KaganClub/index.html**](http://www.kaganonline.com/KaganClub/index.html)

[**http://classroom.leanderisd.org/webs/marzano/**](http://classroom.leanderisd.org/webs/marzano/)

 **Differentiated Instruction.** A fuller definition of differentiated instruction is that a teacher proactively plans varied approaches to what students need to learn, how they will learn it, and /or how they can express what they have learned in order to increase the likelihood that each student will learn as much as he or she can as efficiently as possible. (Tomlinson, 2003, p. 151)

[**http://webhost.bridgew.edu/kdobush/strategies%20for%20teaching%20reading/handbook/diff\_inst/differentiated20instruction.htm**](http://webhost.bridgew.edu/kdobush/strategies%20for%20teaching%20reading/handbook/diff_inst/differentiated20instruction.htm)

 **Socratic Seminars** are a highly motivating form of intellectual and scholarly discourse conducted in K-12 classrooms. They usually range from 30-50 minutes or longer if time allows, once a week. They foster active learning as participants explore and evaluate the ideas, issues, and values in a particular text or texts.

[**http://www.pwcs.edu/curriculum/sol/socratic.htm**](http://www.pwcs.edu/curriculum/sol/socratic.htm)

 **Reciprocal Teaching** refers to an instructional activity that takes place in the form of a dialogue between teachers and students regarding segments of text. The dialogue is structured by the use of four strategies: summarizing, question generating, clarifying, and predicting. The teacher and students take turns assuming the role of teacher in leading this dialogue.

[**http://www.ncrel.org/sdrs/areas/issues/students/atrisk/at6lk38.htm**](http://www.ncrel.org/sdrs/areas/issues/students/atrisk/at6lk38.htm)

  **Concept Attainment** allows students to figure out the attributes of a group or category that has already been formed by the teacher. To do so, students compare and contrast examples that contain the attributes of the concept with examples that do not contain those attributes. They then separate them into two groups. Concept attainment, then, is the search for and identification of attributes that can be used to distinguish examples of a given group or category from non-examples.

[**http://olc.spsd.sk.ca/DE/PD/Instr/strats/cattain/index.html**](http://olc.spsd.sk.ca/DE/PD/Instr/strats/cattain/index.html)

  **Problem-based Learning (PBL)** is focused, experiential learning (minds on, hands on) organized around the investigation and resolution of messy, real-world problems. A PBL curriculum provides authentic experiences that foster active learning, support knowledge construction, and naturally integrate school learning and real life; this curriculum approach also addresses state and national standards and integrates disciplines.

[**http://www.ascd.org/research\_a\_topic/Education\_Topics/Problem-Based\_Learning/pbl.aspx**](http://www.ascd.org/research_a_topic/Education_Topics/Problem-Based_Learning/pbl.aspx)

 **Learning Focused Instruction** is a comprehensive continuous school improvement model that:

1. Provides schools with consistent learning

2. Provides exemplary strategies for instruction

3. Integrates research-based exemplary practice

[**http://learningfocused.com**](http://learningfocused.com)

 **Frayer’s Model** includes the concept word**,** the definition, and characteristics of the concept word, examples of the concept word, and non examples of the context word. It is important to include both examples and non examples so students are able to identify what the concept word is and what it is not.

[**http://www.longwood.edu/staff/jonescd/projects/educ530/aboxley/graphicorg/fraym.htm**](http://www.longwood.edu/staff/jonescd/projects/educ530/aboxley/graphicorg/fraym.htm)

  **Concept Formation** by Hilda Taba (1966) is used to enhance the thinking skills of students. It gives students practice in categorizing as well as developing, extending, and refining concepts.

[**http://www.unf.edu/~jbosnick/jb/3324concfor.pdf**](http://www.unf.edu/~jbosnick/jb/3324concfor.pdf)

 **Backward Design** is an approach to instruction design promoted by Wiggins and McTighe, 1988, with curriculum units around these types of questions: What enduring understandings do I want my students to develop? How will I know if my students have learned what I want them to learn? How will I engage my students in the instruction?

[**http://www.greece.k12.ny.us/instruction/ELA/6-12/BackwardDesign/Overview.htm**](http://www.greece.k12.ny.us/instruction/ELA/6-12/BackwardDesign/Overview.htm)

  **Dimensions of Learning** is a comprehensive model that defines the learning process. Its premise is that five types of thinking are essential to successful learning. These five dimensions focus on attitudes and perceptions, acquiring and integrating knowledge, extending and refining knowledge, using knowledge meaningfully, acquiring productive habits of mind.

[**http://www.mcrel.org/dimensions/whathow.asp**](http://www.mcrel.org/dimensions/whathow.asp)

 **Compare, Contrast, Classify—Using Analogies & Metaphors** requires the ability to break a concept into its similar and dissimilar characteristics allowing students to understand (and often solve) complex problems by analyzing them in a more simple way. While teacher-directed activities focus on identifying specific terms, research shows student-directed activities encourage variation and broaden understanding.

**Applications**

\* Use Venn diagrams or charts to compare/contrast & classify items.

\*Engage students in comparing, classifying ad creating metaphors and analogies

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[**http://www.middleweb.com/MWLresources/marzchat1.html**](http://www.middleweb.com/MWLresources/marzchat1.html)

 **Summarizing and Notetaking** These skills promote greater comprehension by asking students to analyze a subject to expose what’s essential and then put it in their own words. According to research, this requires substituting, deleting, and keeping some things and having an awareness of the basic structure of the information presented. **Applications: \***Requires a set of rules for creating a summary. \*When summarizing, ask students to question what is unclear, clarify those questions, and predict what will happen next.

Research shows that taking MORE notes is better than FEWER notes, though verbatim notes are ineffective because students do not have enough time to process the information. Use teacher prepared notes Stick to a consistent format for notes.

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 **Reinforcing Effort & Providing Recognition** speak to the attitudes and beliefs of students, and teachers must show the connection between effort and achievement. Research shows that students can learn to change their beliefs to emphasize effort. **Applications;** Sharing about people who succeeded by not giving up, keeping a weekly log of efforts and achievements. Find ways to personalize recognition. Give awards for individual accomplishments**. “**Pause, Prompt, Praise**”** If a student is struggling, pause to discuss the problem, then prompt with suggestions for improvement.

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  **Non-linguistic representations** have proven to not only stimulate but also increase brain activity. According to research, knowledge is stored in two forms, linguistic and visual. The more students use BOTH forms, the more opportunity they have to achieve.

**Applications** would be to incorporate words & images using symbols to represent relationships as well as using physical models and movement to represent information.

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 **Homework & Practice** provide students with the opportunity to extend their learning outside the classroom. However, research shows that the amount of homework assigned should vary by grade level and that parent involvement should be minimal. Teachers should explain the purpose of homework to both the students and parents or guardians, and teachers should try to give feedback on all homework assigned.

**Applications: \***Establish a homework policy with advice—such as keeping a consistent schedule, setting, and time limits. \*Tell students if homework is for practice or preparation for upcoming units. \*Maximize the effectiveness of feedback by varying the way it is delivered.

Research shows that students should adapt skills while they are learning them. Speed and accuracy are key indicators of the effectiveness of practice.

**Applications: \***Assign timed quizzes for homework & have students report on their speed & accuracy.

\* Focus on difficult concepts and set aside time to accommodate practice periods.

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  **Setting objectives and providing feedback** can provide students with a direction for their learning. Goals should not be too specific; they should be easily adaptable to students’ own objectives. **Applications:**

**\***Set a core goal for a unit, and then encourage students to personalize that goal by identifying areas of interest to them. Questions like “I want to know more about” and “I want to know” get students thinking about their interests and actively involved in the goal-setting process.

Use contracts to outline specific goals that students must attain and the grade they will receive if they meet those goals.

Teachers should manage the form that feedback takes. Teachers can never give too much feedback and research shows that feed back generally produces positive results. Keep feedback timely and specific. Make sure feedback is corrective in nature; tell students how they did in relation to specific levels of knowledge.

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 **Testing & Generating Hypothesis** Research shows that a deductive approach (using a general rule to make a prediction) to this strategy worksbest. Whether a hypothesis is induced or deduced, students should clearly explain their hypothesis and conclusions.

**Applications:**

\*Ask students to predict what would happen if an aspect of a familiar system, such as the government or transportation, were changed. \*Ask students to build something using limited resources. This type of task generates questions and hypotheses about what may and may not work.

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 **Cues, Questions, & Advance Organizers** help students use what they already know about a topic to enhance further learning. Research shows that these tools should be highly analytical, should focus on what is important, and are most effective when presented before a learning experience.

**Applications:**

**\***Pause briefly after asking a question. Doing so will increase the depth of your students’ answers.

\* Vary the style of advance organizer used: tell a story, skim a text, or create a graphic image. There are many ways to expose students to information before they “learn” it.

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 **Mnemonics** are strategies for memorizing and assimilating information. They can help people to master interesting concepts and provide a lot of fun doing so. Teachers can use mnemonics to guide their presentations of material and can teach devices that students can use to enhance their individual and cooperative study of information and concepts.

[**http://hagar.up.ac.za/catts/learner/cooplrn/b3.html**](http://hagar.up.ac.za/catts/learner/cooplrn/b3.html)

  **Simulations** are constructed from descriptions of real life situations. A less than real life situation is created for the instructional situation. The student engages in activity to achieve the goal of the simulation and has to do so with realistic factors until the goal is mastered.

[**http://hagar.up.ac.za/catts/learner/cooplrn/b3.html**](http://hagar.up.ac.za/catts/learner/cooplrn/b3.html)

 **Group Investigation** is the direct route to the development of a community of learners. A substantial part of a students’ education should be by cooperative inquiry into important social & academic problems. Group Investigation has been designed to lead students to define problems, explore various perspectives on the problems, and study together to master information, ideas, and skills—simultaneously developing their social competence.

[**http://hagar.up.ac.za/catts/learner/cooplrn/b3.html**](http://hagar.up.ac.za/catts/learner/cooplrn/b3.html)

  **Scientific Inquiry** The student is brought into the scientific process and helped to collect and analyze data, check out hypotheses and theories, and reflect on the nature of knowledge construction.

[**http://hagar.up.ac.za/catts/learner/cooplrn/b3.html**](http://hagar.up.ac.za/catts/learner/cooplrn/b3.html)

  **Jurisprudential Inquiry** is designed for secondary students in the social students and implies the case study method, reminiscent of legal education. Students study case studies involving social problems in areas where public policy is to be made (justice & equality, poverty & power, etc). They are led to identify the public policy issues as well as options available for dealing with them and the values underlying those options. This model can be used in any area where there are public policy issues, for instance ethics in science, business, sports, etc.

[**http://hagar.up.ac.za/catts/learner/cooplrn/b3.html**](http://hagar.up.ac.za/catts/learner/cooplrn/b3.html)

  **Role Play** help students to understand social behavior, their role in social interaction and ways of solving problems more effectively. It also helps students collect and organize information about social issues, develop empathy with others, and attempt to improve their social skills. The model requires students “act out” conflicts, to learn to take the roles of others, and to observe social behavior. With adaptation, role plying can be used with students of all ages.

[**http://hagar.up.ac.za/catts/learner/cooplrn/b3.html**](http://hagar.up.ac.za/catts/learner/cooplrn/b3.html)

 **Team Games Tournament** is a cooperative learning strategy developed at Johns Hopkins University. It can be used as an assessment alternative and/or as a review technique.

[**http://www.woodrow.org/teachers/bi/1995/tournaments.html**](http://www.woodrow.org/teachers/bi/1995/tournaments.html)

 **Student Teams Achievement Division (STAD)** is one of three strategies under the umbrella of Student Learning Teams developed at Johns Hopkins University based on years of research on cooperative learning. In STAD ,students study with 4-5 team members following a teacher presentation. Students take quizzes individually to demonstrate how much they have learned. The individual quiz scores are summed to form a team score, and teams are rewarded for their performance. Teams are made up of students with varying academic abilities, genders, and race. The entire cycle of activities, from teacher presentation to team practice to quiz, usually takes three to five class (50-minute) class periods. STAD has been used in a wide variety of subjects, from math to language arts to social studies, and has been used from grade 2 through college. It is most appropriate for teaching well-defined objectives with single right answers, such as specific locational characteristics in geography and some map skills, knowledge of events in history, and principles of economics or government.

[**http://www.pwcs.edu/curriculum/sol/stad.htm**](http://www.pwcs.edu/curriculum/sol/stad.htm)

 **Synectics** operates on the principle that , by using the mind’s remarkable capacity to connect seemingly irrelevant elements of thought, we can spark surprising new ideas that may later be developed into feasible solutions to problems.

[**http://www.pwcs.edu/curriculum/sol/synectics.htm**](http://www.pwcs.edu/curriculum/sol/synectics.htm)